AN 08-40TU60-2
A.P. No. 2273A

HANDBOOK OF OPERATING INSTRUCTIONS

for

TRANSMITTER TUNING UNIT TU-60

RESTRICTED

(For Official Use Only)

Approved 18 APRIL 1944

AN 08-40TU60-2
A.P. No. 2273A

HANDBOOK OF OPERATING INSTRUCTIONS

for

TRANSMITTER TUNING UNIT TU-60

RESTRICTED

(For Official Use Only)

COPYFYER LITHOGRAPH CORP., CLEVELAND, OHIO
MAY, 1944 - 1,000

Approved 18 APRIL 1944

Published under joint authority of the United States War and Navy Departments and the Air Council of the United Kingdom.

SECURITY NOTICE

FOR U. S. PERSONNEL: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law. (AR 380-5) (ARTS 75½ & 76, U.S.N. REGS-1920.)

The information contained in restricted documents and the essential characteristics of restricted materiel will not be communicated to the public or to the press, but may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work.

FOR BRITISH PERSONNEL: For Official Use Only—Not to be communicated to anyone outside His Majesty's Service. Not to be published. The information given in this document is not to be communicated, either directly or indirectly, to the press or to any person not holding an official position in His Majesty's Service.

LIST OF REVISED PAGES ISSUED

NOTE: A heavy black vertical line, to the left of the text on revised pages, indicates the extent of the revision. This line is omitted where more than 50 per cent of the page is revised.

This issue contains no revisions.

ADDITIONAL COPIES OF THIS PUBLICATION MAY BE OBTAINED AS FOLLOWS:

AAF ACTIVITIES—Submit requisitions to the Commanding General, Fairfield Air Service Command, Patterson Field, Fairfield, Ohio, Attention: Publications Distribution Branch, in accordance with AAF Regulation No. 5-9. Also, for details of Technical Order distribution, see T. O. No. 00-25-3.

NAVY ACTIVITIES.—Submit requests to the Chief, Bureau of Aeronautics, Navy Department, Washington, D. C.

BRITISH ACTIVITIES.—Submit requirements on Form 294A, in duplicate, to the Air Publications and Forms Store, New College, Leadhall Lane, Harrogate, Yorkshire, England.

TABLE OF CONTENTS

Section		Page
	DESTRUCTION OF ABANDONED MATERIEL IN THE COMBAT ZONE	ii
	UNSATISFACTORY REPORT	ii
I.	GENERAL DESCRIPTION	1
1.	General	1
2.	Equipment Supplied	1
3.	Physical Description	1
II.	INSTALLATION AND ADJUSTMENT	2
1.	Installation	2
a.	Transmitter Tuning Unit TU-60	2
b.	Cording	2
2.	Adjustments	3
3.	Preparation for Use	3
III.	OPERATION	3
1.	Starting the Equipment	3
2.	Stopping the Equipment	3
3.	Tuning Procedure	3
IV.	EMERGENCY OPERATION AND REPAIR	3
1.	Emergency Repair	3

LIST OF ILLUSTRATIONS

Figure		Page
1.	Transmitter Tuning Unit TU-60 and Adapter U-XA-1/U, Exterior View	1
2.	Transmitter Tuning Unit TU-60, Cording Diagram	2

Destruction of Abandoned Materiel in the Combat Zone

In case it should become necessary to prevent the capture of this equipment and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

Means:-

1. Explosives, when provided.
2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.
4. Grenades and shots from available arms.
5. Burying all debris or disposing of it in streams or other bodies of water, where possible and when time permits.

Procedure:-

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument-boards.
3. Destroy all controls, switches, relays, connections, and meters.
4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil and water-cooling systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part, whether rotating, moving, or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.
8. Bury or scatter all debris.

DESTROY EVERYTHING!

★

Unsatisfactory Report

For U. S. Army Air Force Personnel:

In the event of malfunctioning, unsatisfactory design, or unsatisfactory installation of any of the component parts of this equipment, or if the material contained in this book is considered inadequate or erroneous an Unsatisfactory Report, AAF Form No. 54, or a report in similar form, shall be submitted in accordance with the provisions of Army Air Force Regulation No. 15-54 listing:

1. Station and organization.
2. Nameplate data (type number or complete nomenclature if nameplate is not attached to the equipment).
3. Date and nature of failure.
4. Airplane model and serial number.
5. Remedy used or proposed to prevent recurrence.
6. Handbook errors or inadequacies, if applicable.

For U. S. Navy Personnel:

Report of failure of any part of this equipment during its guaranteed life shall be made on N. Aer. 4112, "Report of Unsatisfactory or Defective Material," or a report in similar form, and forwarded in accordance with the latest instructions of the Bureau of Aeronautics. In addition to other distribution required, one copy shall be furnished to the inspector of Naval Materiel (location to be specified) and the Bureau of Ships. Such reports of failure shall include:

1. Reporting activity.
2. Nameplate data.
3. Date placed in service.
4. Part which failed.
5. Nature and cause of failure.
6. Replacement needed (yes—no).
7. Remedy used or proposed to prevent recurrence.

For British Personnel:

Form 1022 procedure shall be used when reporting failure of radio equipment.

SECTION I

GENERAL DESCRIPTION

1. GENERAL.

a. Transmitter Tuning Unit TU-60 (fig. 1) is designed for use in aircraft, or on the ground, in conjunction with Radio Transmitter BC-191-(*) or BC-375-(*).

b. Transmitter Tuning Unit TU-60 operates from the same power supply which is used by the associated transmitter.

2. EQUIPMENT SUPPLIED.

Quantity	*Name of Unit*	*Overall Dimensions (Inches)*	*Weight (Pounds)*
1	Transmitter Tuning Unit TU-60	7⅝ x 16¾ x 8¾	10
1	Adapter U-XA-1/U		0.3
		Total Weight	10.3

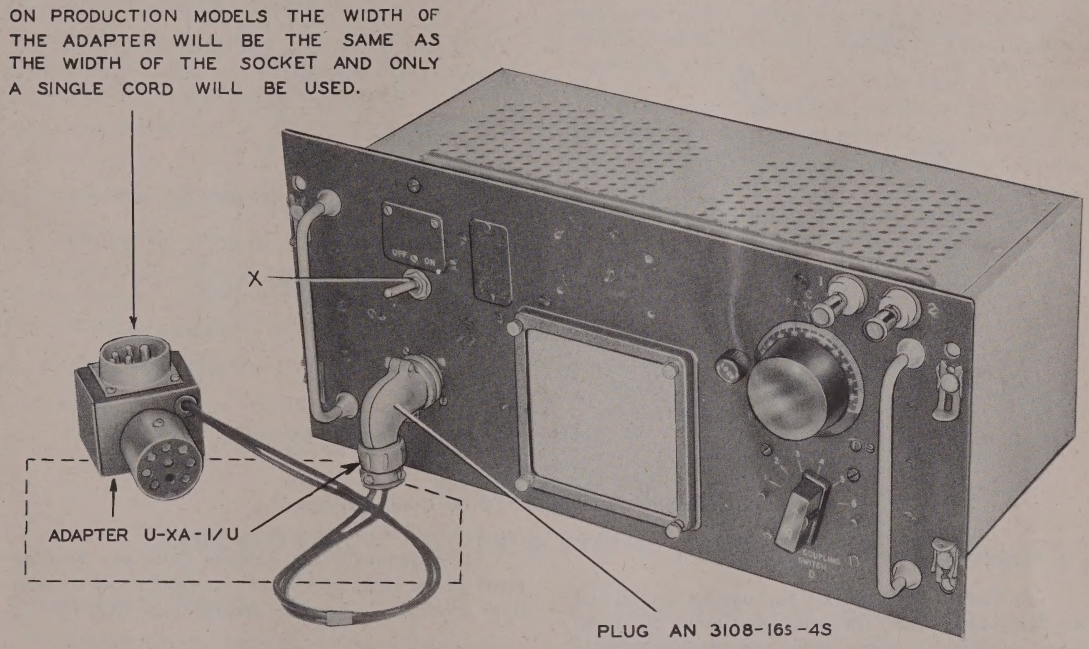
ON PRODUCTION MODELS THE WIDTH OF THE ADAPTER WILL BE THE SAME AS THE WIDTH OF THE SOCKET AND ONLY A SINGLE CORD WILL BE USED.
X
ADAPTER U-XA-1/U
PLUG AN 3108-16S-4S

Figure 1—Transmitter Tuning Unit TU-60 and Adapter U-XA-1/U, Exterior View

3. PHYSICAL DESCRIPTION.

Transmitter Tuning Unit TU-60 is housed in a duralumin case with all the controls mounted on the front panel. The tuning unit is plugged into the associated radio transmitter so that the front panel of the tuning unit forms a part of the front panel of the transmitter. (See fig. 2.)

*Refers to all productions of the series.

SECTION II

INSTALLATION AND ADJUSTMENT

1. INSTALLATION

a. TRANSMITTER TUNING UNIT TU-60.

(1) Insert Transmitter Tuning Unit TU-60 in the associated transmitter so that the plugs and jacks on the tuning unit and the transmitter are properly connected.

(2) Lock the tuning unit in place by fastening the snap slides on each side of the front panel.

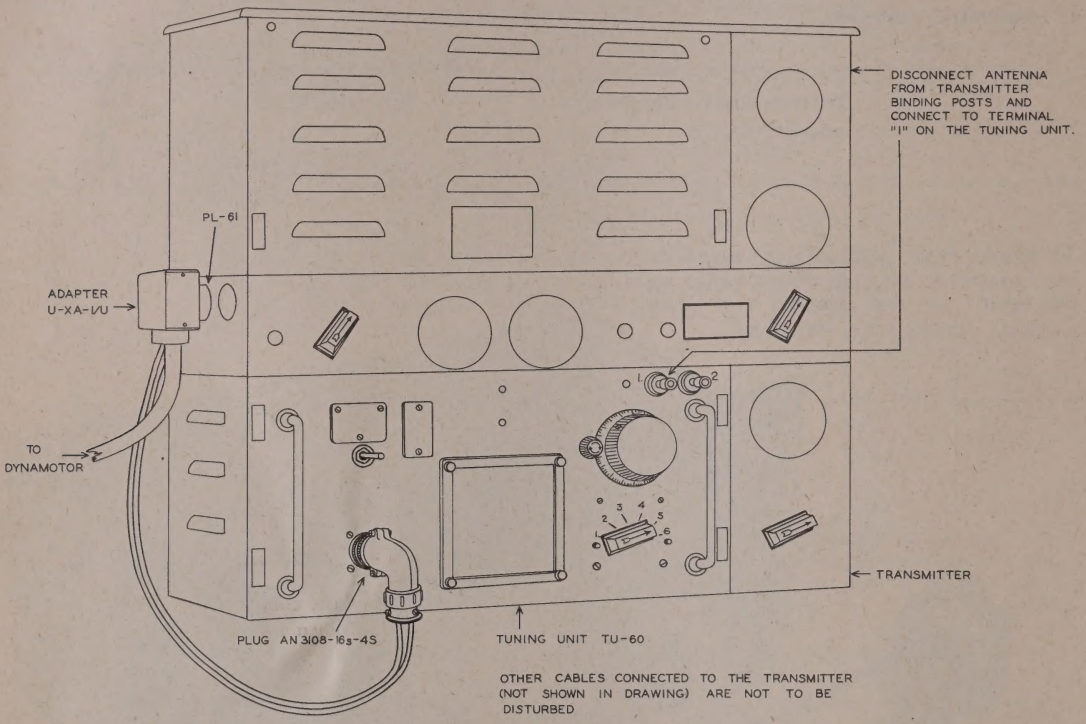
DISCONNECT ANTENNA FROM TRANSMITTER BINDING POSTS AND CONNECT TO TERMINAL "1" ON THE TUNING UNIT.
PL-61
ADAPTER U-XA-1/U
TO DYNAMOTOR
TRANSMITTER
PLUG AN3108-16s-4S
TUNING UNIT TU-60
OTHER CABLES CONNECTED TO THE TRANSMITTER (NOT SHOWN IN DRAWING) ARE NOT TO BE DISTURBED

Figure 2—Transmitter Tuning Unit TU-60, Cording Diagram

b. CORDING.

(1) Remove Plug PL-61 (located on the end of the dynamotor cable) from the left side of the transmitter and insert it in the socket provided on Adapter U-XA-1/U. (See fig. 2.)

(2) Plug Adapter U-XA-1/U into the socket on the transmitter from which Plug PL-61 was removed. (See fig. 2.)

(3) Insert plug AN3108-16s-4S, located on the end of the cable connected to the adapter, in receptacle AN3102-16s-4P provided on the front panel of the tuning unit. Tighten the locking ring.

(4) Disconnect the antenna from the binding posts on the right side of the transmitter and connect it to terminal "1" on the tuning unit. (See fig. 2.)

Note

Tuning Unit TU-60 is designed to operate with a standard Eighth Air Force fixed wire antenna (a single piece of Wire W-106-A). Using the equipment with other antennas having characteristics differing greatly from the recommended antenna may result in a low output.

(5) Remove the wire connected between the binding posts ("LOADING A" and "LOADING B"). The "GND" and "REC" posts may be left as normally connected.

2. ADJUSTMENTS.

No preliminary adjustments are required for the operation of Transmitter Tuning Unit TU-60 other than those required for the associated transmitter as covered in the handbook of operating instructions for that equipment.

3. PREPARATION FOR USE.

a. Throw the "TONE—C. W.—VOICE" switch on the transmitter to "C. W."

b. Throw the "C. W. FIL.-MOD. FIL." switch on the transmitter to "C. W. FIL."

c. Set the "ANT. COUPLING" switch on the tuning unit to "1".

d. Set the "ANT. CIRCUIT" switch on the transmitter to "3".

e. Set the "ANT. IND. TUNING" control on the transmitter for minimum inductance (maximum dial reading).

SECTION III

OPERATION

1. STARTING THE EQUIPMENT.

a. Turn on the associated transmitter according to the instructions given in the handbook of operating instructions for that particular equipment.

b. Place switch "X" in the "ON" position. (See fig. 1.)

2. STOPPING THE EQUIPMENT.

a. Turn switch "X" to the "OFF" position.

b. Turn off the associated transmitter according to the instructions given in the handbook of operating instructions for that particular equipment.

3. TUNING PROCEDURE.

a. Adjust the "P. A. TUNING" control on the tuning unit to the desired band mid-point as indicated on the calibration chart located on the front panel of the tuning unit.

b. Adjust the "COUPLING CONTROL" switch on the tuning unit until the plate current approaches the limit mark (indicated by a wide white line) on the "TOTAL PL. CURRENT" meter on the transmitter. The average antenna current is indicated on the "ANT. CURRENT" meter in the upper right corner of the transmitter.

CAUTION

Do not adjust the coupling beyond the limit mark as the transmitter fuses may be blown as a result.

SECTION IV

EMERGENCY OPERATION AND REPAIR

1. EMERGENCY REPAIR.

Transmitter Tuning Unit TU-60 requires no emergency repair. For information regarding the repair of the associated transmitter, refer to the handbook of maintenance instructions for that equipment.